

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-39. (Cancelled).

40. (Currently amended) A line arrangement for an electrical system of a vehicle, said electrical system comprising a power source connected to a current feed terminal for supplying current and to a second terminal, with at least one electrical device connected to a current delivery terminal and to said second terminal, said line arrangement providing electrical power from said power source to said electrical device and comprising:

an electrical supply line running from said current feed terminal to said current delivery terminal and having at least one current-carrying inner conductor electrically connecting said current feed terminal and said current delivery terminal and at least one electrically isolating protective sheath surrounding the at least one inner conductor,

a detector element embedded within a protective enclosure and with successive windings surrounding the supply line over an extent of the supply line,

said detector element having at least one of an optical property and an electrical property, changes of the at least one of the optical and electrical properties being detectable by detecting means,

said detector element being adapted in such a way that at least one of said electrical and optical properties are irreversibly changed when a parallel local arc originating from one of the at least one current-carrying inner conductor to a body component of the vehicle occurs, irrespective of a direction of the parallel local arc, and

an isolating circuit responsive to the change of the at least one of the electrical and optical properties of the detector element and connected to the current feed terminal, said isolating circuit

isolating the at least one current-carrying inner conductor from a current source when a change of the at least one of the electrical and optical properties of the detector element is detected by the detecting means.

41. (Previously presented) A line arrangement according to claim 40, wherein the detector element is formed in such a way that it irreversibly deteriorates in its electrical and/or optical property under the local effect of heat.

42. (Cancelled).

43. (Previously presented) A line arrangement according to claim 40, wherein the detector element comprises at least one electrical and/or optical detector line, the electrical and/or optical property of which is irreversibly changed when the arc occurs.

44. (Previously presented) A line arrangement according to claim 43, wherein the detector line runs in the form of a helix.

45. (Previously presented) A line arrangement according to claim 43, wherein the detector line runs in the form of meanders.

46. (Previously presented) A line arrangement according to claim 43, wherein portions of the detector line following one another in a longitudinal direction of the supply line and running transversely in relation to the longitudinal direction of the supply line are spaced apart from one another by a spacing which is less than approximately the diameter of one of the at least one inner conductor.

47. (Previously presented) A line arrangement according to claim 43, wherein the detector line consists of a material which irreversibly changes in its electrical and/or optical property when there is local ingress of an amount of heat that can be generated by the arc.

48. (Previously presented) A line arrangement according to claim 43, wherein the detector line consists of a material which irreversibly changes in its electrical and/or optical property from a threshold temperature, which lies in the range from approximately 100°C to approximately 500°C.

49. (Previously presented) A line arrangement according to claim 43, wherein the detector line is surrounded by an insulating protective enclosure.

50. (Previously presented) A line arrangement according to claim 43, wherein the detector element has a carrier on which the detector line is held.

51. (Previously presented) A line arrangement according to claim 50, wherein the detector line is disposed in the form of conducting tracks on the carrier.

52. (Previously presented) A line arrangement according to claim 51, wherein the conducting tracks run in the manner of meanders on the carrier.

53. (Previously presented) A line arrangement according to claim 51, wherein the carrier is given the form of a carrier strip.

54. (Previously presented) A line arrangement according to claim 53, wherein the carrier strip runs helically around the supply line.

55. (Previously presented) A line arrangement according to claim 50, wherein the carrier surrounds the supply line at least partially.

56. (Previously presented) A line arrangement according to claim 50, wherein the carrier encloses the supply line substantially completely.

57. (Previously presented) A line arrangement according to claim 50, wherein the carrier forms part of a protective enclosure for the detector line.

58. (Previously presented) A line arrangement according to claim 50, wherein the carrier consists of a material which irreversibly changes under the effect of the arc originating from the at least one inner conductor.

59. (Previously presented) A line arrangement according to claim 58, wherein:

the carrier is connected to the detector line and consists of a material which under the local effect of the arc originating from one of the at least one inner conductor irreversibly deforms and thus changes said at least one of said optical and electrical properties of said detector line due to the connection of said detector line to said carrier.

60. (Previously presented) A line arrangement according to claim 58, wherein:

the carrier is connected to the detector line and consists of a material which under the local effect of the arc originating from one of the at least one inner conductor irreversibly decomposes and thus changes said at least one of said optical and electrical properties of said detector line due to the connection of said detector line to said carrier

61. (Previously presented) A line arrangement according to claim 58, wherein on account of its irreversible change under the local effect of the arc, the carrier irreversibly changes the electrical and/or optical property of the detector line.

62. (Previously presented) A line arrangement according to claim 61, wherein the carrier locally interrupts the detector line.

63. (Previously presented) A line arrangement according to claim 40, wherein the detector element irreversibly changes in its electrical and/or optical property when it is mechanically damaged.

64. (Previously presented) A line arrangement according to claim 43, wherein the detector element changes in its electrical and/or optical property when it undergoes mechanical damage caused by a mechanical component at a potential other than that of the detector line.

65. (Previously presented) A line arrangement according to claim 43, wherein the detector line irreversibly changes in its electrical and/or optical property when the detector element undergoes mechanical damage.

66. (Previously presented) A line arrangement according to claim 65, wherein the detector line irreversibly deteriorates in its property with regard to the passing through of electrical and/or optical signals when it undergoes mechanical damage.

67. (Previously presented) A line arrangement according to claim 43, wherein the detector line lies in a circuit specific to the detector line.

68. (Previously presented) A line arrangement according to claim 40, wherein at least one detector circuit is provided which activates the isolating circuit.

69. (Previously presented) A line arrangement according to claim 68, wherein the detector circuit is associated with the current feed terminal.

70. (Previously presented) A line arrangement according to claim 68, wherein the detector circuit is associated with the current delivery terminal.

71. (Previously presented) A line arrangement according to claim 68, wherein the detector circuit communicates with the isolating circuit by means of an electrical line.

72. (Previously presented) A line arrangement according to claim 68, wherein the detector circuit communicates with the isolating circuit by means of a light guide.

73. (Previously presented) A line arrangement according to claim 68, wherein:
a number of detector circuits are provided, and
the detector circuits communicate with one another to sense a change of the electrical and/or optical property of the detector element.

74. (Previously presented) A line arrangement according to claim 73, wherein the detector circuits communicate with one another via an internal line within the line strand.

75. (Previously presented) A line arrangement according to claim 73, wherein the detector circuits communicate with one another via an external line outside the line strand.

76. (Previously presented) A line arrangement according to claim 73, wherein the detector circuits communicate with one another via an electrical line.

77. (Previously presented) A line arrangement according to claim 73, wherein the detector circuits communicate with one another via an optical line.

78. (Previously presented) A line arrangement according to claim 68, wherein the detector circuit detects the occurrence of a potential in the detector line other than that of the detector line.

79. (Previously presented) A line arrangement according to claim 40, wherein:

said detector element comprises a detector line, said detector line having at least an electrical property, changes of said electrical property being detectable by detecting means, and

said detector line is comprised of a material adapted in such a way that at least its electrical properties are irreversibly changed due to at least one of: (a) melting and fusing; and (b) thermal degradation of said material, when the local arc originating from one of the at least one current-carrying inner conductor occurs.

80. (Previously presented) A line arrangement according to claim 40, wherein:

said detector element comprises a detector line, said detector line having at least an optical property, changes of said optical property being detectable by detecting means, and

said detector line is comprised of a polymer material adapted in such a way that at least its optical properties are irreversibly changed when the local arc originating from one of the at least one current-carrying inner conductor occurs.

81. (Currently amended) A line arrangement for electrical systems of vehicles, comprising:

an electrical supply line running from a current feed terminal to a current delivery terminal and having at least one current-carrying inner conductor and at least one protective sheath surrounding the inner conductor,

at least two detector elements embedded within a protective enclosure and with successive windings surrounding the supply line over an extent of the supply line from the current feed terminal to the current delivery terminal,

each detector element having at least one of an optical property and an electrical property, changes of the at least one of the optical and electrical properties being detectable by detecting means,

each detector element being adapted in such a way that at least one of said electrical and optical properties are irreversibly changed when a parallel local arc originating from the current-carrying inner conductor to a body component of a vehicle occurs, irrespective of a direction of the parallel local arc, and

each detector element being connected to a detecting means adapted to detect a change of said at least one electrical and optical properties;

an isolating circuit responsive to the change of the at least one of the electrical and optical properties of the detector element and connected to the current feed terminal, said isolating circuit isolating the current-carrying inner conductor from a current source when a change of the at least one of the electrical and optical properties of one of the detector elements is detected by one of the detecting means.

82. (Previously presented) A line arrangement for electrical systems of vehicles, comprising:

an electrical supply line running from a current feed terminal to a current delivery terminal and having at least one current-carrying inner conductor and at least one protective sheath surrounding the inner conductor,

two detector elements embedded within a protective enclosure and with successive windings surrounding the supply line over an extent of the supply line from the current feed

terminal to the current delivery terminal, each detector element comprising a detector line and a carrier strip on which the detector line is held, said carrier strips being wound with opposite winding directions around the supply lines;

each detector element having at least one of an optical property and an electrical property, changes of the at least one of the optical and electrical properties being detectable by detecting means,

each detector element being adapted in such a way that at least one of said electrical and optical properties are irreversibly changed when a parallel local arc originating from the current-carrying inner conductor to a body component of a vehicle occurs, and

detecting means adapted to detect a change of said at least one electrical and optical properties of said at least two detector elements;

an isolating circuit responsive to the change of the at least one of the electrical and optical properties of the detector element and connected to the current feed terminal, said isolating circuit isolating the current-carrying inner conductor from a current source when a change of the at least one of the electrical and optical properties of one of the detector elements is detected by the detecting means.

83. (Cancelled).

84. (Currently amended) A line arrangement for electrical systems of vehicles, comprising:

an electrical supply line running from a current feed terminal to a current delivery terminal and having at least one current-carrying inner conductor and at least one protective sheath surrounding the inner conductor,

a detector element embedded within a protective enclosure and with successive windings surrounding the supply line over an extent of the supply line from the current feed terminal to the current delivery terminal,

the detector element comprising a detector line and a carrier strip on which the detector line is held,

said detector element having at least one electrical property, changes of the at least one electrical property being detectable by detecting means,

said detector element being adapted in such a way that the at least one electrical property is irreversibly and immediately changed when a parallel local arc originating from the current-carrying inner conductor to a body component of a vehicle occurs,

a detector circuit detecting an irreversible change of said at least one electrical property of said detector line ~~and further detecting a change of electrical potential of said detector line;~~

an isolating circuit responsive to the at least one electrical property of the detector element and connected to the current feed terminal, said isolating circuit isolating the current-carrying inner conductor from a current source when a change of at least one of the at least one electrical properties and said electrical potential of the detector element is detected by the detector circuit.

85. (Currently amended) A line arrangement for an electrical system of a vehicle, said electrical system comprising a power source connected to a current feed terminal for supplying current and to a second terminal, with at least one electrical device connected to a current delivery terminal and to said second terminal, said line arrangement providing electrical power from said power source to said electrical device and comprising:

an electrical supply line running from said current feed terminal to said current delivery terminal and having at least one current-carrying inner conductor electrically connecting said current feed terminal and said current delivery terminal and at least one electrically isolating protective sheath surrounding the at least one inner conductor,

a detector element embedded within a protective enclosure and with successive windings surrounding the supply line over an extent of the supply line from the current feed terminal to the current delivery terminal,

said detector element comprising a carrier and a detector line,

said detector line having at least one of an optical property and an electrical property, changes of said at least one of the optical and electrical properties being detectable by detecting means,

the carrier being connected to the detector line and consisting of a material which under the local effect of an arc originating from one of the at least one inner conductor irreversibly deforms, leading to mechanical stresses which [[and]] actively act[[s]] on the detector line and thus changes said at least one of said optical or electrical properties of said detector line due to the connection of said detector line to said carrier, and

an isolating circuit responsive to [[the]] the change of the at least one of the electrical and optical properties of the detector element and connected to the current feed terminal, said isolating circuit isolating the at least one current-carrying inner conductor from a current source when a change of the at least one of the electrical and optical properties of the detector line is detected by the detecting means.

86. (Currently amended) A line arrangement for an electrical system of a vehicle, said electrical system comprising a power source connected to a current feed terminal for supplying current and to a second terminal, with at least one electrical device connected to a current delivery terminal and to said second terminal, said line arrangement providing electrical power from said power source to said electrical device and comprising:

an electrical supply line running from said current feed terminal to said current delivery terminal and having at least one current-carrying inner conductor electrically connecting said current feed terminal and said current delivery terminal and at least one electrically isolating protective sheath surrounding the at least one inner conductor,

a detector element running along the supply line within a protective enclosure,

said detector element comprising a carrier strip and a detector line applied on said strip in the form of a detector track,

said detector line having at least one of an optical property and an electrical property, changes of said at least one of the optical and electrical properties being detectable by detecting means,

the carrier strip being connected to the detector track and consisting of a material which under the local effect of an arc originating from one of the at least one inner conductor irreversibly changes its behavior by exerting mechanical forces acting directly on the detector track ~~and thus changing said at least one of said optical and electrical properties of which interrupt~~ said detector track due to the connection of said detector track to said carrier strip, and

an isolating circuit responsive to [[the]] the change of the at least one of the electrical and optical properties of the detector element and connected to the current feed terminal, said isolating circuit isolating the at least one current-carrying inner conductor from a current source when a change of the at least one of the electrical and optical properties of the detector track is detected by the detecting means.

87. (Cancelled).

88. (Currently amended) A line arrangement for an electrical system of a vehicle, said electrical system comprising a power source connected to a current feed terminal for supplying current and to a second terminal, with at least one electrical device connected to a current delivery terminal and to said second terminal, said line arrangement providing electrical power from said power source to said electrical device and comprising:

an electrical supply line running from said current feed terminal to said current delivery terminal and having at least one current-carrying inner conductor electrically connecting said current feed terminal and said current delivery terminal and at least one electrically isolating protective sheath surrounding the at least one inner conductor,

a detector element in the form of a strip embedded in a protective enclosure and with successive windings surrounding the supply line over an extent of the supply line from the current feed terminal to the current delivery terminal,

said detector element having at least one optical property, changes of the at least one optical property being detectable by detecting means,

said detector element being adapted in such a way that the at least one optical property is irreversibly and immediately changed when a local arc originating from one of the at least one current-carrying inner conductor occurs, and

an isolating circuit responsive to the at least one optical property of the detector element and connected to the current feed terminal, said isolating circuit isolating the at least one current-carrying inner conductor from a current source when a change of the at least one optical property of the detector element is detected by the detecting means.

89. (New) A line arrangement for an electrical system of a vehicle, said electrical system comprising a power source connected to a current feed terminal for supplying current and to a second terminal, with at least one electrical device connected to a current delivery terminal and to said second terminal, said line arrangement providing electrical power from said power source to said electrical device and comprising:

an electrical supply line running from said current feed terminal to said current delivery terminal and having at least one current-carrying inner conductor electrically connecting said current feed terminal and said current delivery terminal and at least one electrically isolating protective sheath surrounding the at least one inner conductor,

a detector element embedded within a protective enclosure and with successive windings surrounding the supply line over an extent of the supply line,

said detector element having at least one of an optical property and an electrical property, changes of the at least one of the optical and electrical properties being detectable by detecting means,

said detector element being adapted in such a way that at least one of said electrical and optical properties are irreversibly and immediately changed when a parallel local arc originating from one of the at least one current-carrying inner conductor to a body component of the vehicle occurs, and

an isolating circuit responsive to the change of the at least one of the electrical and optical properties of the detector element and connected to the current feed terminal, said isolating circuit isolating the at least one current-carrying inner conductor from a current source when a change of the at least one of the electrical and optical properties of the detector element is detected by the detecting means.